Grasshopper Sparrow Conservation Action Plan: Recommended Actions. This Action Plan is primarily for the migratory subspecies of Grasshopper Sparrow (*Ammodramus savannarum pratensis and A.s. perpallidus*) and where applicable, the Southwest subspecies (*A.s. ammolegus*). The resident Florida subspecies (*A. s. floridanus*) is listed under the ESA and the Recovery Plan take precedence. The Southwest subspecies (*A.s. ammolegus*) has a limited number of specific actions included in a separate section below. The Puerto Rican Grasshopper Sparrow (*A. s. borinquensis*) will need to be addressed by a local group interested in its conservation. In general, Grasshopper Sparrows (GRSP) are widespread breeders, within a wide range of grassland habitats and their population trends and monitoring are covered by the Breeding Bird Survey (BBS), which can then be used to identify target areas and regions of special concern. Compiled by Stephanie L. Jones and Janet R. Ruth.

Priority	Section	Subsection 1	Priority	ACTION ITEM	LEAD PARTY	POTENTIAL PARTNERS	ANNUAL CYCLE	COMMENTS
1	**Population Status**							
1.1		Status assessment	**1**	Identify regions of special concern. GRSP are widespread breeders, within a wide range of grassland habitats. Areas of declining populations and habitat should be identified and those area targeted by conservation measures.			All	
1.2.A		Status monitoring	**2**	Analyze the BBS data to identify priority areas for conservation. Assess trends and coverage of the BBS to identify areas of concern.			Breeding	
1.2.B		Status monitoring	**2**	Increase grassland bird monitoring using the Grassland Bird Monitoring programs in Canada and the U.S.			Breeding	
2	**Conservation**							
2.1.A	Conservation	BMPs	**1**	Develop Best Management Practices (BMPs) and guidance on the appropriate methods for restoring grasslands to guide habitat management or restoration decisions. This includes developing BMPs for geographic recommendations for grazing levels, mowing timing and methods, fire frequencies and other habitat enhancement techniques. See Management.			All	
2.1.B	Conservation	BMPs	**1**	Implement (BMPs) as they are developed and determine whether current recommendations are valid, for different geographic areas and seasons. See Education.			All	

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2.2.A	Conservation	Habitat protection/restoration	**2**	Use GIS information to select high priority habitats and geographic areas for protection and restoration. See Monitoring and Research.			Breeding	
2.2.B	Conservation	Habitat protection/restoration	**2**	Establish protected natural areas. Establish a system for public rangelands (esp. US Forest Service National Grasslands) that creates a mosaic of grassland habitats.			All	
2.2.C	Conservation	Habitat protection/restoration	**2**	Develop a compensation/subsidy program to compensate farmers for declines in the value of their hay crop if they delay harvest or for taking sub-optimal land out of hay production.			Breeding	
2.2.D	Conservation	Habitat protection/restoration	**2**	Develop social and economic incentives to discourage conversion of grasslands to croplands.			All	
2.2.E	Conservation	Habitat protection/restoration	**2**	Use conservation easements (voluntary and paid) or purchase of larger tracts of land with native grassland protecting large tracts of existing native grasslands from conversion and fragmentation. Provide incentives to establish large expanses of continuous grasslands.			Breeding	
2.3.A	Conservation	Habitat protection/restoration	**3**	Ensure the future of the Conservation Reserve Program and Grassland Reserve program in the US and PCP in Canada and ensure it continue protects existing grasslands and allows participants the right to graze, mow or hay subject to restrictions designed to protect nesting birds			Breeding (migration and winter)	
2.3.B	Conservation	Habitat protection/restoration	**3**	Defer management disturbances (grazing, burning, mowing) during the breeding season until after breeding in public lands and where practicable.			Breeding	

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2.4.A	Conservation	Wintering and Migration	1	Determine habitat needs on wintering range, including influence of non-native vegetation, precipitation, and diet and seed resources.			Winter	
2.4.B	Conservation	Habitat protection/restoration--winter	2	Assess wintering areas in southern U S and Mexico to identify and protect areas with high value for GRSP populations.			Winter	
3	Management							
3.1	Management	Habitat- BMPs-General	1	Work with CRP in U.S. and PCP in Canada to design management guidelines to provide grassland habitat that benefits GRSP (and other grassland species of concern) ensuring that management, including grazing and mowing is appropriate for GRSP and is prohibited where it is not beneficial.			Breeding	
3.2.A	Management	Habitat-BTPs-Grazing	2	Use livestock grazing practices that allow large acreages of grasslands to be in a mosaic of taller and shorter grasses. Develop BMPs for the use of grazing for GRSP habitat throughout the geographic extent of the range, and specific to the geographic area.			Breeding, Migration	
3.2.B	Management	Habitat- BMPs-Mowing	2	Avoid nighttime mowing to avoid killing or injuring roosting birds.			Breeding	
3.2.C	Management	Habitat- BMPs-Mowing	2	Delay mowing until after the breeding season. When mowing cannot be delayed on all fields, (1) delay mowing on public and private lands managed for wildlife conservation purposes; (2) use hayfield rotational management to rotate sizable fields that are mowed early with those mowed later in season to provide some fields for nesting birds.			Breeding	

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3.2	Management	Habitat-General	**2**	Identify and protect habitats primarily in native perennial grasses. Use management techniques that focus on restoring natural disturbance and removing invasive, non-native plant species. Use local, native genotypes and seed priming protocols, if available.			Breeding	
3.2	Management	Habitat-General	**2**	Manage grasslands to include a mosaic of management prescriptions, including both recently disturbed and undisturbed grassland areas.			ALL	
3.2	Management	Habitat-General	**2**	Maintain landscape mosaic of grass, focus grassland protection and restoration to increase the percent of grassland on the landscape, reduce distance between patches, and conserve closely connected patches of grassland in landscapes with less human development and woody vegetation.			ALL	
3.2	Management	Habitat- General	**2**	Design management disturbance (grazing, burning, mowing) to provide nesting refuges, in contiguous areas, away from trees, buildings, roads, and crop fields.			Breeding	
3.2	Management	Habitat-Burn	**2**	Burn parcels in a rotational pattern across multiple years to maintain a mosaic of different vegetation structures, compositions, and successional stages. Use a fire regime that is appropriate for the geographic area and type of grassland. Fire should attempt to mimic the effects of natural wildfires in the geographic area.			ALL	
3.2	Management	Habitat-Cropland	**2**	Minimize crop field operations that destroy nests (e.g., subsurface tillage) where possible. Avoid mowing or spraying with herbicide in uncultivated areas such as fencerows and grassed waterways whenever possible.			Breeding	

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3.3	Management	Energy	3	Promote existing guidelines related to energy development (and improve them where necessary) and develop and publish additional guidelines energy development activities (e.g., wind, oil, gas, solar, and biomass).			ALL	
3.4	Management	Pesticides	4	Use Integrated pest management (IPM) to manage pest weeds and arthropods, and include GRSP in IPM planning programs.			Breeding	
3.5.A	Management	Habitat-Restoration	5	Employ management practices that will reduce woody cover. Focus efforts on grasslands having less woody vegetation encroachment than the threshold exhibited by GRSP.			ALL	
3.5.B	Management	Habitat-Restoration	5	Where possible, consolidate adjacent grassland fields and eliminate hedgerows, fence lines and tree lines. Where managing for GRSP and other open grassland species remove linear strips of woody vegetation (shelterbelts, fencerows, hedgerows, etc.).			ALL	
4	**Inventory, Population Monitoring & Assessment**							
4.1	Inventory, Population Monitoring & Assessment	Habitat and Management	1	Ground truth or use expert knowledge to validate GIS information for GRSP.			ALL	
4.3	Inventory, Population Monitoring & Assessment	Habitat and Management	1	Determine the quantity and quality of grassland habitat, and monitor changes in quantity and quality over time			Breeding	
4.2	Inventory, Population Monitoring & Assessment	Monitoring	2	Encourage and solicit increased participation in the BBS and increase the number of trained observers and routes in grassland habitat.			Breeding	
4.5	Inventory, Population Monitoring & Assessment	Monitoring	2	Evaluate the existing inventory and monitoring data for both populations and habitat to identify data gaps, particularly on the wintering range.			Breeding, Winter	

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4.6	Inventory, Population Monitoring & Assessment	Inventory	3	Use existing programs, e.g.; avian checklist, bird atlas, e-Bird, Natural Heritage programs, and collated sightings from bird enthusiasts, to refine distribution data in all seasons, particularly on the winter range and during migration.			All	
4.4	Inventory, Population Monitoring & Assessment	Wintering and Migration	4	Inventory and monitor the distribution and habitat use for GRSP on the wintering grounds.			Winter	
5	Research							
5.1.A	Research	Conservation	1	Develop and refine predictive models of occurrence and abundance using existing data to identify potential source breeding areas. Produce geographic information system (GIS) maps to delineate regions of high probability of occurrence and abundance, in all seasons.			All	
5.1.B	Research	Conservation	1	Develop and assess techniques to recover GRSP populations in areas that have experienced declines and range contractions.			All	
5.2.A	Research	Demographics	2	Increase demographic information of GRSP throughout different geographic areas, establish long-term study plots throughout the breeding range to monitor demographic parameters.			Breeding	
5.2.B	Research	Demographics	2	Conduct demographic studies of survival/mortality and productivity throughout life cycle (breeding, non-breeding) and across its range to determine when populations are most limited and to help determine what limiting factors may be contributing to population declines and whether various populations are source or sink populations			Breeding	

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5.2.C	Research	Demographics	**2**	Conduct studies on GRSP post-fledgling biology, behavior, and demographics			Breeding	
5.3.A	Research	Demographics	**3**	Conduct research to determine site fidelity, return rates and survivorship in different geographic areas.			Breeding, Winter	
5.3.B	Research	Demographics	**3**	Study the effects of different management practices on productivity and survival and how these associations are affected by scale (patch size and landscape matrix); do comparisons across geographic range and different subspecies			All	
5.4.A	Research	Development	**4**	Determine the effects of tall structures, (e.g., buildings, towers, wind developments) on habitat components (e.g. invasive plant species, fragmentation) and on mortality rates.			ALL (esp. breeding and migration)	
5.4.B	Research	Energy	**4**	Research to determine the effects of energy development and production on GRSP.			ALL (esp. breeding and migration)	
5.4.C	Research	Habitat and Management	**4**	Determine the relative level of identified threats including habitat loss and degradation, pesticide exposure, predation, etc. , on both breeding and wintering ranges, and their relative importance to continuing declines and range contractions.			All	
5.4.D	Research	BMPs-Grazing	**4**	Determine the grazing levels and seasons that create suitable GRSP habitat in different geographic areas and seasons and what levels grazing become a threat to GRSP habitat.			Breeding	
5.4.E	Research	BMPs-Grazing	**4**	Determine the impact of cattle grazing on Brown-headed Cowbird parasitism rates.			Breeding	
5.4.F	Research	BMPs-Grazing	**4**	Evaluate the impacts of short-duration, high intensity grazing (Savory (1988)) on GRSP, particularly in the southwest.			ALL	

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5.4.G	Research	BMPs-Disturbance	4	Increase basic knowledge on the effects of haying, grazing, burning and brush control and other management actions on demographic parameters, e.g., parasitism rates, survivorship. Make recommendations for management			Breeding	
5.4.H	Research	BMPs-Fire	4	Determine the fire regimes that create suitable GRSP habitat in different geographic areas.			Breeding	
5.5.1	Research	Wintering and Migration	1	Conduct research to determine wintering habitat components that are important, including distribution, amount, and protection status of nonbreeding habitat.			Winter	
5.5.2	Research	Wintering and Migration	2	Describe migration and wintering distribution, and habitat. Conduct studies on GRSP migration ecology - stopover habitat use, routes, behavior, etc.			Migration, Winter	
5.5.3	Research	Wintering and Migration	3	Determine degree of wintering habitat threats, and limiting factors.			Winter	
5.5.4	Research	Wintering and Migration	4	Study on GRSP winter ecology, including effects of seed resources and precipitation			Winter	
6	**Education and Outreach**							
6.1	Education and Outreach	BMPs	1	Produce outreach documents to inform and influence land use decisions and policies that affect grassland habitat. In particular, distribute the Best Management Practices.			All	
6.2.A	Education and Outreach	Conservation	2	Develop education and outreach tools for GRSP for public and landowner education and outreach on the value of conserving intact native prairie.			All	
6.2.B	Education and Outreach	Conservation	2	Develop education and communication programs targeted at youth, land managers, and the general public increasing awareness GRSP and their habitat requirements.			All	

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6.2.C	Education and Outreach	Conservation	**2**	Integrate GRSP needs into land management programs and grassland conservation initiatives.			All	
6.3	Education and Outreach	Habitat	**3**	Outreach to Mexican NGOs and government agencies to work on GRSP populations and habitats.			Winter	
10	**Southwest subspecies**							
10	Resident subspecies	Arizona	**1**	Determine if the Chino Valley population in AZ is a different sub-species			Breeding	
10	Resident subspecies	Arizona	**2**	Determine the level of recommended grazing on prime GRSP habitat and the recommended levels of rest and rotation			ALL	